

Waimanalo Gulch Sanitary Landfill
Stormwater Management Update and Contingency Plan
1/27/2011

Following the recent major storm events, Waste Management of Hawaii (WMH) has assessed and evaluated its stormwater control systems for effectiveness. Below is an update of ongoing measures being taken to prevent future storm damage at the site, and document efforts to further contain potential storm water and prevent waste material from exiting the facility in the event of a major storm.

- 1) The 36-inch drain was designed to handle water falling within the landfill footprint, upstream of the waste disposal area, during landfilling operations. It was also intended to mitigate runoff during small storms until the diversion channels are in place. The west side drainage channel has been designed to control the 100-year storm and will mitigate the impact of storms with higher return periods.
 - The effectiveness of 36-inch inlet structure for the up canyon drainage system has been restored and improved. The area immediately surrounding the inlet structure has been re-graded and armored with large boulders to prevent high sediment loading from clogging the inlet. A diversion berm immediately downstream of this diversion structure has been reinforced and re-built to further direct any stormwater into the inlet structure.
 - The area surrounding the future Cell E-8 is being excavated down to the elevation of the 36-inch pipe inlet structure. This effort will help to create stormwater retention, dissipate stormwater velocities, and drop out sediment as it moves from the upper reaches of the construction area towards the 36" inlet structure. This effort has been ongoing since 1/18.
- 2) Establish a functioning Western Drainage System.

In order to establish a functioning Western Drainage System, the up canyon conveyance structure must be in place to divert storm water into the box culvert and fiberglass piping system. Additionally, the box culvert invert that originates at the diversion structure must be connected to the 78" fiberglass piping located on the upper bench above Cell E-6. WMH's contractor continues to work double shifts on these two fronts. A functioning Western Drainage System will be in place within 2 weeks, barring any additional large rainfall events that would prevent this work from being safely completed.
- 3) Temporary containment berm directly south of Cell E6

This berm was constructed by WMH's contractor during the 12-19-10 storm to contain large stormwater flows originating from up canyon and prevent a catastrophic discharge from the site. The berm did safely contain this storm, and was subsequently substantially reinforced prior to the storm that occurred on 1-13-11. The storm water that was contained behind the berm has now been removed, creating a storage area capable of containing water from a similar rainfall event. Preliminary stability analysis indicates the berm has adequate strength to contain the runoff.